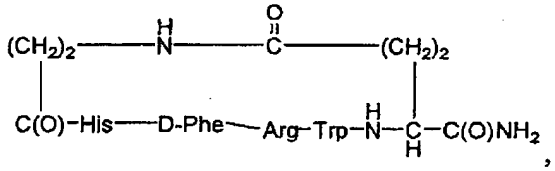
REMARKS

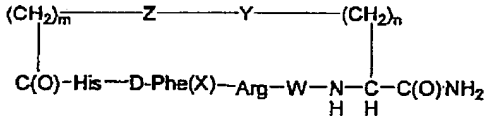
Reconsideration of the application and the amendments above is respectfully requested. Claims 1-15 were pending in the present application. Claims 2-5, 7, 8 and 11-15 are withdrawn from further consideration by the Examiner as being drawn to a non-elected invention. Claims 1, 6, 9 and 10 are rejected. Currently, Claims 1, 6, 9 and 10 are pending in the present application.

Preliminarily, Applicants request that Claims 2-5, 7, 8 and 11-15 be rejoined and examined by the Examiner. In the July 8, 2008 Response to the Restriction Requirement, Applicants inadvertently overlooked that compound A, the elected species, reads on Claims 2-5, 7, 8 and 11 – 15, in addition to Claims 1, 6, 9 and 10.

Compound A has the following structure: cyclo(NH-CH_2-CH_2-CO-His-D-Phe-Arg-Trp-Glu)-NH_2, or



which corresponds to a compound of structural formula I:



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wherein Z is NH; Y is C(O); m is 2; X is hydrogen (corresponding to D-Phe(X) wherein D-phenylalanyl is unsubstituted); W is L-tryptophanyl; and n is 2. Based on its structure, compound A falls within the scope of Claims 1-10, and is specifically claimed in Claims 5 and 8.

Additionally, compound A, which corresponds to the compound of example 8 on page 6 (not example 4 as stated in the July 8, 2008 Response to the Restriction Requirement). As shown in the table in Example 2 on page 22, compound A has an EC50 that is 111 times more selective for the human melanocortin 4 receptor than for the human melanocortin 3 receptor. Therefore, compound A reads on Claims 11, 12 and 13. Further, as shown in the table in Example 2 on page 22, compound A has an EC50 that is 3585 times more selective for the human melanocortin 4 receptor than for the human melanocortin 5 receptor. Therefore, compound A reads on Claims 11, 14 and 15.

Applicants therefore request that the Examiner reinstate claims 2-5, 7, 8 and 11-15 for consideration.

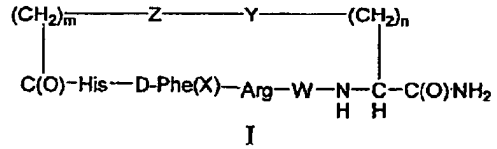
REJECTION UNDER 35 U.S.C. 112, FIRST PARAGRAPH
FOR LACK OF ENABLEMENT

The Examiner rejected Claims 1, 6, 9 and 10 under 35 USC 112, first paragraph because the specification, while being enabling for a method of inhibiting alcohol consumption comprising administering a therapeutically effective amount of a selective melanocortin 4 receptor agonist, compound A, does not reasonably provide enablement for a method of inhibiting alcohol consumption comprising administering a therapeutically effective amount of a selective melanocortin 4 receptor agonist. The Examiner stated that the breadth of the claims is excessive with regard to claiming a method of inhibiting, reducing, or treating alcohol consumption/abuse comprising administering a therapeutically effective amount of a selective melanocortin 4 receptor agonist, since Applicants have only provided guidance for the use of compound A. The Examiner indicated that Applicants have provided no guidance of any other compound which inhibits alcohol consumption. The Examiner further indicated that in the absence of evidence to the contrary, it would not be expected that any and all selective melanocortin 4 receptor agonists would inhibit alcohol consumption.

The Examiner further stated that it would not be predictable to the artisan which substance acts as an inhibitory substance would work in the present invention, nor would it be predictable to the artisan which pathologies could be treated with these ingredients that inhibit alcohol consumption or act as a inhibitory substance. Finally, the Examiner stated that it is apparent that there is undue experimentation because of a variability in prediction of outcome that is not addressed by the present application; and absent factual data to the contrary, the amount and level of experimentation needed is undue to practice the invention as claimed.

Applicants respectfully disagree. Applicants submit that rejected Claims 1, 6, 9 and 10, as well as Claims 2-5, 7, 8 and 11-15, of the present application are described in the specification in such a way as to enable one skilled in the art to practice the invention.

Claims 1, 6, 9 and 10 are not functional claims claiming that any selective melanocortin 4 receptor agonist, regardless of structure, is useful for inhibiting alcohol consumption, reducing alcohol consumption, treating alcoholism and treating alcohol abuse. Instead, Claims 1, 6, 9 and 10 specifically claim the use of selective melanocortin 4 receptor agonists, wherein the selective melanocortin 4 receptor agonist is a compound of structural formula I:



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or a pharmaceutically acceptable salt thereof, to inhibit alcohol consumption, reduce alcohol consumption, treat alcoholism and treat alcohol abuse. The compounds of structural formula I comprise a narrow genus in which Z is defined by a Markush group comprising: -C(O)- or -NH-; Y is defined by a Markush group comprising: -C(O)- or -NH-; W is defined by a

Markush group comprising: L-tryptophanyl or 2-naphthyl-L-alanyl; D-Phe(X) is D-phenylalanyl unsubstituted or optionally para substituted with a group selected from the Markush group comprising: F, Cl, Br, Me and OMe; m is 1 to 4 and n is 1 to 4 provided that n+m is 4 to 6.

One of skill in the art would know from the definition of the compounds of formula I in Claims 1, 6, 9 and 10 which compounds would be useful to treat alcoholism, to inhibit alcohol consumption, to reduce alcohol consumption and to treat alcohol abuse. No undue experimentation is required by one of skill in the art to determine which compounds are useful to treat the specific indications claimed in Claims 1, 6, 9 and 10.

Further, the preparation of the melanocortin 4 receptor agonists of formula I, including the compounds in Examples 1-9 (which include compound A), is disclosed in WO 03/006604, as disclosed on page 6, lines 2-4 of the specification. Applicants submit that WO 03/006604 sufficiently describes how the compounds of the present invention can be made and that at the priority date of the present application one of ordinary skill in the art would be able to make the compounds of the present invention based on the disclosure in WO 03/006604.

The specification also discloses how to use the compounds of the present invention. As stated in *In re Bundy*, 209 U.S.P.Q. 48, 51 (CCPA 1981), the how to use requirement of 112 is satisfied by "disclosure of some activity coupled with the knowledge as to the use of this activity." The specification of the instant application provides such a disclosure. The specification discloses a method for determining the melanocortin 4 receptor binding affinity (IC50) and the melanocortin 4 receptor cAMP functional activity (EC50) on pages 19 - 22 (See Examples 1 and 2). The specification provides specific IC50 and EC50 values for compounds of Examples 1-9 for human melanocortin receptors 3, 4 and 5. The relative selectivities of the compounds of Examples 1-9 for the human melanocortin receptors 3, 4 and 5 are also provided in the tables on pages 20-21 and 21-22. Further Example 4 on pages 22-23 describes an ethanol consumption study useful to determine if a selective melanocortin 4 receptor agonist is useful to reduce and/or inhibit alcohol consumption, and to treat alcoholism and alcohol abuse. Finally, on page 6, lines 5-9, the specification discloses that one of ordinary skill in the art can identify MC4R agonists useful in the compositions and methods of the present invention using the methods described in Bednarek et al., Peptides, 20 (1999) page 401-409, and that MC4R agonists useful in the present invention generally have an IC50 less than 100 nM in the MC4R binding assay described in Bednarek et al.

The specification also provides a statement of the utility of the claimed compounds on page 4, line 29 to page 5, line 16. The specification specifically discloses that the compounds of the present invention are useful to treat alcoholism and alcohol abuse, and to inhibit and reduce alcohol consumption on page 10, lines 32-34.

The specification further teaches how to use the claimed compounds by including a detailed description of routes of administration and dosages. Specifically, the dosage ranges of 0.0001 mg/kg to 1000 mg/kg of body weight are listed on page 14, line 27 - 29; and the routes of administration for the compounds of the present invention are recited as "oral, rectal, topical, parenteral (including subcutaneous, intramuscular, and intravenous),

pulmonary, or nasal" on page 16, line 3-8. Applicants submit that the specification sufficiently describes how the compounds of the present invention can be used and sufficiently describes how and in what dosage the compounds of the present invention can be administered.

The specification provides guidance that is sufficient for alcohol related disorders, including inhibiting alcohol consumption, reducing alcohol consumption, treating alcoholism and treating alcohol abuse, and that would allow one of skill in the art to practice the instant invention without undue experimentation. The court has held that "[A] considerable amount of experimentation is permissible, if it is merely routine, or is the specification provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." (*In re Wands*, 858 F.2d at 737, 8 U.S.P.Q.2d at 1404 (quoting *Ex parte Jackson*, 217 U.S.P.Q. 804, 807 (Bd. App. 1982). One of ordinary skill in the art can readily identify the compounds of formula I useful in the methods of the present invention. As disclosed above, using the assays provided on pages 19 - 24 of the specification, one of ordinary skill in the art can readily determine if a compound works as a melanocortin 4 receptor agonist and is useful to treat alcohol related disorders. Applicants submit that a reasonable amount of guidance with respect to experimentation is given in the specification.

Applicants submit that in vitro and in vivo testing of each embodiment of the invention is not required under section 112, first paragraph. Applicants submit that section 112 does not require working examples (*In re Strahilevitz*, 668, F.2d 1229, 212 U.S.P.Q. 561 (CCPA 1982)) and that the applicants claim scope is not necessarily limited only to those embodiments actually disclosed in the specification (See *Spectra-Physics Inc. v. Coherent Inc.*, 827 F.2d 1524, 3 U.S.P.Q.2d 1737 (Fed. Cir. 1987); see also *Utter v. Hiraga*, 845 F.2d 998, 6 U.S.P.Q.2d at 1714 ("A specification may, within the meaning of 3 USC 112, first paragraph, contain a written description of a broadly claimed invention without describing all species that claim encompasses"), and that the embodiment need not necessarily have even been reduced to practice (See In re Wright, 999 F.2d 1557; 1561, 27 U.S.P.Q.2d 1510, 1513).

Applicants further submit that although the claimed invention has not yet been tested in human clinical trials for safety and effectiveness, such trials are not required to establish utility under the patent law:

> Usefulness in patent law, and in particular in the context of pharmaceutical inventions, necessarily includes the expectation of further research and development. The stage at which an invention in this field becomes useful is well before it is ready to be administered to humans. Were we to require Phase II testing in order to prove utility, the associated costs would prevent many companies from obtaining patent protection on promising new inventions, thereby eliminating the incentive to pursue, through research and development, potential cures in many crucial areas... *In re Brana*, 34 U.S. P.Q.2d 1436, 1442-3 (Fed Cir. 1995)

In summary, the instant specification provides a teaching of how to use the invention which would be credible to the person of ordinary skill in the art and which would permit the

skilled artisan to use the claimed compounds for the stated utility without undue experimentation.

Given the specification disclosures of: 1) the preparation of the compounds of formula I in the art, as provided in WO 03/006604; 2) the screening assays for melanocortin 4 receptor agonists and activity data; 3) the routes of administration of the claimed compounds; and 4) the dosage ranges for treating eating alcohol related disorders. Applicants submit that one of skill in the art would know how to make and use the claimed invention at the priority date of the present invention, and that the requirements of 112 are satisfied.

In view of the above arguments, Applicants respectfully submit that Claims 1, 6, 9 and 10, as well as Claims 2-5, 7, 8 and 11-15, are adequately enabled and request reconsideration and withdrawal of the rejection of Claims 1, 6, 9 and 10 under 35 USC 112, first paragraph.

Applicants respectfully contend that the application is allowable, and a favorable response from the Examiner is earnestly solicited.

Respectfully submitted,

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